

THE TOKEN ECONOMY: A DÉCADE LATER

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In the last decade, the token economy has been extended widely across populations and behaviors in treatment, rehabilitation, educational, and community settings. Outcome research has expanded as well to include large-scale program evaluations and comparative and combined treatment studies of the token economy. In a previous review (Kazdin & Bootzin, 1972), several obstacles were identified for the effective application of the token economy. These included identifying procedures to enhance program efficacy, to train staff, to overcome client resistance, and to promote long-term maintenance and transfer of training. The present paper discusses recent advances in research and reviews progress on the major issues identified previously. New issues have become salient in the last decade that pertain to the extension of the token economy to institutional settings. The demands for maintaining the integrity of treatment, the ability to integrate token economies within existing institutional constraints, and the disseminability of the procedures on a large scale are major issues that may dictate the future of the token economy.

DESCRIPTORS: token economies, reinforcement programs, dissemination

In the middle and late 1960's, the token economy emerged as a promising intervention in treatment, rehabilitation, and educational settings. Major impetus for the development of the token economy was the pioneering work of Ayllon and Azrin (1965, 1968*b*) who developed and evaluated a program for chronic psychiatric patients. Several other programs emerged for psychiatric patients, delinquents, the mentally retarded, children in classroom settings, and other populations (see Kazdin & Bootzin, 1972; O'Leary & Drabman, 1971). Since the late 1960's and early 1970's, the breadth of applications has increased greatly. Within areas that already received attention, programs extended to diverse subpopulations. For example, within psychiatric populations, the token economy has been extended beyond chronic psychiatric patients to patients with acute disorders (Gershon, Erick-

son, Mitchell, & Paulson, 1977), organic brain syndromes (Murphy, 1976), psychosomatic disorders (Wooley, Blackwell, & Winget, 1978), and autistic children (Hung, 1977), to mention a few. The token economy has also been extended to new areas of research such as behavioral medicine (Ferguson & Taylor, 1980), behavioral ecology (Lloyd, 1980) community psychology (Glenwick & Jason, 1980), and geriatric psychology (Hussian, 1981).

Within the last decade, extension of the token economy has also been evident in the number of studies comparing the token economy with other interventions (e.g., Bushell, 1978; Paul & Lentz, 1977; Stoffelmayr, Faulkner, & Mitchell, 1979) and examining the potential benefits of combining a token economy with other procedures (e.g., Greenberg, Scott, Friesen, & Pisa, 1975; McCreadie, Main, & Dunlop, 1978). The most dramatic extension has been the application of token economies on a much larger scale than had been the case previously. Perhaps the largest extension has been the Behavior Analysis Follow Through program for disadvantaged elementary school children (Bushell, 1978). The

Completion of this paper was supported by a Research Scientist Development Award (MH00353) from the National Institute of Mental Health. Requests for reprints should be sent to the author, Western Psychiatric Institute and Clinic, 3811 O'Hara Street, University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania 15213.

Follow Through program was developed to follow up the gains provided by an earlier intervention program, Head Start. However, the Follow Through project was designed specifically to test different models of intervention including Behavior Analysis. The program has been implemented in kindergarten through third grades and has included over 7,000 children in approximately 300 classrooms and 15 separate cities throughout the United States. Other programs even though smaller in scale still represent major extensions of the token economy in educational settings by encompassing entire schools (e.g., Boegli & Wasik, 1978) and classes from several different schools (Rollins, McCandless, Thompson, & Brassell, 1974; Thompson, Brassell, Persons, Tucker, & Rollins, 1974).

A decade ago, Bootzin and I evaluated the token economy research and identified several issues and obstacles (Kazdin & Bootzin, 1972). These included: (a) maintaining behavior and ensuring generalization, (b) training staff to implement the token economy, (c) increasing client responsiveness to the contingencies, and (d) overcoming client resistance to the program. Since the earlier review, the literature has proliferated and considerable progress has been made. An evaluative review of research is now well beyond the confines of a chapter or journal article (see Kazdin, 1977; O'Leary, 1978). The present article discusses issues raised by token economies in light of applications over the last decade. The purpose is to examine progress on salient issues identified previously as in need of research and significant issues that have recently emerged.

PROGRESS ON SALIENT ISSUES

Enhancing Effects of Token Economies

From the inception of the token economy, reports indicated that some number of participants may not respond to the contingencies. For example, Ayllon and Azrin (1965), reported that 18% ($n = 8$) of chronic psychiatric patients

were generally unaffected by the procedures. Since this report, other programs with psychiatric patients, the mentally retarded, delinquents, and children in school settings have continued to report a small but consistent percentage of participants who fail to respond (see Hemsley, 1978; Kazdin, in press).

Research has examined whether particular client variables contribute to responsiveness to the token economy, but the evidence has been inconsistent. For example, in token economies for psychiatric patients, degree of patient withdrawal, social isolation and length of hospitalization are negatively correlated with improvement in some studies (Ayllon & Azrin, 1968*b*; Fullerton, Cayner, & McLaughlin-Reidel, 1978) but unrelated or even positively correlated with responsiveness in other studies (Allen & Magaro, 1971; Mishara, 1978). Similarly, conflicting evidence within and across target populations has been provided for the relations between age, IQ, and gender and responsiveness to the contingencies (e.g., Fullerton et al., 1978; Mishara, 1978; Moran, Kass, & Munz, 1977).

A significant development over the last decade is recognition that lack of responsiveness to the token economy may reflect more on the program than on clients who fail to respond. Lack of responsiveness usually refers to the failure of some clients to respond to a set of contingencies that is standardized across all clients. The model on which the token economy is based does not propose that identical contingencies will be universally effective. Considerable evidence exists that persons who do not respond initially to a program may readily respond when some alterations are made in the contingencies.

Several procedures can be used to improve responsiveness. Perhaps the most obvious one is to vary the magnitude of reinforcement. Increases in the number of tokens or the value of back-up events enhance client responsiveness (e.g., Ayllon, Milan, Roberts, & McKee, 1979; Bassett, Blanchard, & Koshland, 1975; Rickard, Melvin, Creel, & Creel, 1973). Another proce-

ture for improving responsiveness is reinforcer sampling (Ayllon & Azrin, 1968*b*) which consists of exposing the client to a portion of the backup reinforcer such as a part of a meal or a few minutes of special social activity. By sampling a portion of the reinforcers on a noncontingent basis, the client is more likely to purchase the event with tokens and consequently to engage in token-earning behaviors (e.g., Ayllon & Azrin, 1968*a*, 1968*b*; Curran, Lentz, & Paul, 1973). Allowing clients to preselect the backup reinforcers for which they will be working (Kazdin & Geesey, 1980) or to earn their way off the token system for meeting high criterion levels of performance (Kazdin & Mascitelli, 1980) can also enhance responsiveness.

Viewing a token program from the standpoint of an economic system has also identified variables that can be manipulated to enhance performance (see Fisher, Winkler, Krasner, Kagel, Battalio, & Basmann, 1978). Essentially, token-earning behaviors represent work output; the tokens represent income or wages; backup events represent expenditures; and accumulated tokens can be viewed as savings. Altering the amount of savings clients are permitted to accrue, increasing the costs of backup events (inflation), increasing the consumption of backup events by expanding the range and attractiveness of these events, stimulating spending through occasional sales, or placing expiration dates on the tokens to promote spending, have increased responsiveness (e.g., Hung, 1977; Milby, Clarke, Charles, & Willcutt, 1977; Winkler, 1973).

Responsiveness to token reinforcement can also be enhanced by involving peers in the program. For example, permitting peers to share the consequences earned by a particular individual has increased responsiveness of that individual to the contingencies (Feingold & Migler, 1972; Kazdin & Geesey, 1977). Using a peer-manager system of reinforcement in which a member of the peer group administers and withdraws tokens can enhance performance as well (Phillips, Phillips, Wolf, & Fixsen, 1973). Fi-

nally, the addition of response cost or fines can improve client performance in a token economy (e.g., McLaughlin & Malaby, 1977; Walker, Hops, & Fiegenbaum, 1976).

When persons initially fail to respond, performance can be improved by different program variations. The fact that many variables may overcome initial unresponsiveness to the program does not mean that token economies do not "fail" to produce the desired changes or ultimate treatment goals. However, the lack of responsiveness often can be readily controverted with changes in the contingencies.

Staff Training

Training the staff who administer a token economy has been recognized as an important issue throughout the history of reinforcement programs. In recent years, the importance has been substantiated by demonstrations showing that the extent to which staff administer the contingencies as intended (e.g., Jackson, 1976; McLaughlin et al., in press) is directly related to client behavior change. In the last decade a great deal has been learned about alternative training procedures and their effects.

Several methods have been evaluated and include variations of instructions, modeling and role playing, informative feedback, and direct reinforcement using approval and attention, special privileges or "tokens" (e.g., money, trading stamps). Procedures that combine several techniques and include direct reinforcement of staff performance have been especially effective, as demonstrated in school, hospital, and community settings (see Bernstein, 1982; Kazdin, 1980*b*).

An important issue is integrating staff training within the constraints of existing settings. For example, many potent reinforcers that might be used to develop staff performance are usually unavailable for contingent application. The problem has been circumvented in many programs by creative use of such reinforcers as certificates of recognition and approval from super-

visors (Burg, Reid, & Lattimore, 1979; Bushell, 1978; Montegar, Reid, Madsen, & Ewell, 1977). A remaining issue is determining whether training can be effectively carried out on a large scale. Promising results along these lines have already emerged in the context of training teachers to administer the Behavior Analysis Follow Through program (see Bushell, 1978; Jackson, 1976).

Over the last decade, additional information has emerged related to staff training and administration of token economies. Several studies have shown that staff behaviors often change as a function of administering a program. Across different populations and settings, the administration of a token economy has been associated with staff increases in nonverbal and verbal approval for appropriate client behavior and decreases in disapproval and withdrawal of privileges for inappropriate behavior (Boegli & Wasik, 1978; Breyer & Allen, 1975; Trudel, Boisvert, Maruca, & Leroux, 1974). Also, staff working on a token economy ward show more positive attitudes toward patients and toward treatment than staff working on wards with conventional treatments (McReynolds & Coleman, 1972; Milby, Pendergrass, & Clarke, 1975). The social climate or ward atmosphere of token economy wards has also been found to be more positive on several dimensions (e.g., spontaneity, affiliation) than on conventional wards (Wilkinson & Reppucci, 1973). Thus, the token economy appears to produce changes in several facets of the social climate in which staff and clients function.

Client Resistance to the Program

Client resistance refers to expressions of anger, complaints, and rule breaking in response to the token economy. Although only a few reports indicate client resistance, adverse client reactions are important to discuss for different reasons. First, a token economy restructures much of the reward system in most settings. Consequently, the potential for coercion is great. Conceivably, basic amenities previously provided noncontin-

gently might be withheld until they are earned. Second, legal issues raised by token economies in institutional settings have received increased attention in the United States (Martin, 1975). In specifying patient rights and basic conditions of institutional care, the courts have influenced the types of events that can be used as reinforcers (see Kazdin, 1977).

Within legal guidelines, it is still possible to design programs that clients find aversive. For example, Biklen (1976) reported a token economy in a psychiatric hospital that led to patient anger at the system and rejection of the tokens. Objections were based in part on the contingent delivery of many rewards that were given freely before the program. Also, many of the reinforced activities seem puerile (e.g., games, crafts, childlike parties). Similarly, Zeldow (1976) noted adverse reactions of psychiatric patients to a system that seemed to consist of inflexible rules that staff rigidly imposed and the lack of patient recourse for complaints about the system.

Consideration of client reactions to token economies is critical because, in institutional settings, residents usually have the legal right to withdraw from the program. Because the courts have been involved increasingly in the rights of involuntarily confined persons, programs have changed. The onus has fallen on investigators to identify and to provide reinforcers that are ordinarily unavailable in the setting rather than to use basic amenities to which persons are entitled by right (Wexler, 1973). With creative selection of incentives, client resistance is less likely to result because existing reinforcers from the setting are not lost. Indeed, because of the diverse rewards that are added to the program, there is an incentive for participants to remain willingly in the program. Also, in some programs, clients are explicitly given the option of leaving the program without penalty (e.g., Ayllon et al., 1979). Other procedures can be used to overcome client resistance and to help protect client rights. For example, providing opportunities for clients to have input into the system such as selecting rewards or negotiating the contingencies

may increase reactions to the program (see Karkaker, 1977; Kazdin, 1980a). In short, several options are available to overcome client resistance.

To operationalize client resistance, an important point of departure would be to assess client reactions to the program (see Wolf, 1978). The relationship between client reactions and responsiveness to the contingencies could then be more systematically evaluated than has been the case in current research. Moreover, interventions could be designed to have impact on client evaluations of and participation in the program.

Long-Term Effects: Response Maintenance and Transfer to Training

An issue of obvious importance in any intervention program is whether the effects are maintained after the program is terminated and continue outside of the treatment setting. These issues, referred to as response maintenance and transfer, respectively, or as generalization collectively, have been of special concern in token economy research for different reasons. First, token economies and other contingency-based programs are often evaluated in experimental designs (e.g., ABAB) where the intervention is temporarily suspended and behavior returns to or near baseline levels. Thus, even during evaluation of the program, therapeutic gains may be lost or partially lost. Second, token economies often represent environmental arrangements that depart dramatically from the usual environments to which individuals will return. Thus, little transfer of training might be expected from treatment to extratreatment settings.

In the last decade, several developments can be identified regarding maintenance and transfer of intervention effects. To begin with, many more programs are available that report follow-up data than in previous years. Also, for many programs, the follow-up data are reported after the program has been in effect for protracted periods (e.g., several months or a few years). Thus, the long-term effects of treatment have

been given a better test than in demonstration projects with short intervention phases.

The results from different studies show that gains produced by token economies are not inevitably lost. For example, Paul and Lentz (1977) compared social learning, milieu therapy, and routine hospital care for the treatment of chronic psychiatric patients. The social learning program was based primarily on a token economy where patients received incentives for a variety of adaptive behaviors on the ward such as attending activities and engaging in self-care activities or social interaction. Although patients in both social learning and milieu programs improved, the social learning program was consistently more effective on measures in the hospital, discharge of patients and status in the community from 1.5 up to 5 years after termination of the program.

In school settings, follow-up data have also indicated that intervention effects are at least partially maintained. For example, the changes in academic achievement obtained from the Behavior Analysis Follow Through program were still evident 2 years after the program had been terminated and the children had entered classrooms in which token programs were not in effect (Bushell, 1978). Similarly, in a junior high school program for serious behavior problem adolescents, token economies led to reductions in expulsions, suspensions, and grade failure. At follow-up 3 to 4 years later, gains were still evident (Heaton & Safer, 1982; Safer, Heaton, & Parker, 1981). Adolescents who participated in the program showed higher rates of entrance into high school and school attendance, better classroom conduct, and lower rates of withdrawal from school relative to control subjects. However, by the end of senior high school, token economy and control groups showed comparable rates of school enrollment and high school graduation.

With delinquent youths, follow-up results have been obtained for the teaching-family model (based on Achievement Place) (Wolf, Phillips, Fixsen, Braukmann, Kirigin, Willner,

& Schumaker, 1976). The model has been extended to approximately 150 different group homes throughout the United States and a few foreign countries (Jones, Weinrott, & Howard, Note 1). (Actually, the token economy is only part of a much larger program in the teaching-family model and relies on self-government, a skills training curriculum, a relationship with the teaching parents, and procedures to reintegrate youths into the community [Kirigin, Braukmann, Atwater, & Wolf, 1982].) Evaluations of large-scale extensions of the model have shown that measures of offenses and reinstitutionalization from 1 to 3 years after the program are no different for youths who complete the program and those who participate in more traditional programs (Kirigin et al., 1982; Jones et al., Note 1). In contrast, an extensive evaluation of the Achievement Place home where the procedures have been especially well developed and monitored has shown that youths who participate in the program have much lower rates (approximately one half) of reinstitutionalization, and a much higher rate of school attendance in the community than youths in a more traditional detention setting (Kirigin, Wolf, Braukmann, Fixsen, & Phillips 1979). However, in the follow-up period, contact with the police and the courts was not different between groups. The absence of differences on police and court contacts is difficult to interpret. Non-Achievement Place youths were more likely to be reinstitutionalized at follow-up and hence were no longer candidates for police and court contacts.

In general, the above programs show that the effects of participation in a token economy may still be evident up to a few years after the program has been terminated. However, important qualifiers need to be highlighted to place the follow-up data in perspective. First, in many instances a token economy is only one component of the program. For example, in school programs the token economy has been associated with smaller classroom size, individualized instruction, parent involvement in classroom procedures, home-based reinforcement, and other

procedures that may contribute to maintenance and transfer in their own right (e.g., Bushell, 1978; Safer et al., 1981). Similarly, in the Achievement Place program, the token economy is only part of a much more comprehensive program including multiple procedures noted earlier. Thus follow-up results cannot be attributed specifically to the token reinforcement contingencies. However, the primary applied concern is whether after participation in a token economy, the gains in behavior are necessarily lost; several programs indicated that they are not.

Second, in many cases, follow-up data show that gains are sustained in some areas of performance but lost in others. Thus, the long-term effects of a program are not simply evaluated by whether the gains are retained or not. For example, in the junior high school program of Safer et al. (1981), some measures reflected maintenance of intervention effects (school attendance) and others did not (graduation from high school). The same was true for the comparison of Achievement Place and other facilities where follow-up gains for delinquents were different on some measures but not on others (Kirigin et al., 1979, 1982; Jones et al., Note 1).

Third, with long-term follow-up, intervening experiences (e.g., hospital aftercare) can obfuscate the effects of the original program. Intervening and current environmental contingencies may exert more immediate impact on performance than a program a few years earlier. Thus, it is no surprise that several investigators have cautioned that token programs may have immediate impact but perhaps should not be expected to alter future performance unless the environments to which persons return promote continuation of the gains (Bushell, 1978; Kirigin et al., 1982; Paul & Lentz, 1977).

Although many programs have shown that the effects of token economies are partially maintained, maintenance and transfer continue to be salient issues. Whether intervention effects will be maintained is still not entirely predictable. Several programs have shown that behavioral gains are lost when the program is terminated.

Why behaviors are maintained after some programs but not others is not obvious. Simple hypotheses such as those stating that particular target behaviors are likely to be maintained are not easily supported. Responses that might be expected to be maintained by the natural environment (e.g., social interaction) are lost in some studies and maintained in others (see Kazdin, 1980*b*). Programs that have shown long-term changes often have been in effect for relatively long periods. Protracted participation in a program may develop greater stability in the target behaviors so that they are less likely to be lost or to depend on immediate changes in the environment once the client leaves the program.

As a general rule, it is still prudent to assume that behavioral gains are likely to be lost in varying degrees once the client leaves the program. Thus, special efforts are required to ensure that the gains are maintained, a point cogently made by Baer, Wolf, and Risley in 1968 and frequently (and deservedly) cited ever since. In the last decade, considerable progress has been made in identifying strategies that increase the likelihood that behaviors are maintained and extend to new settings (see Kazdin, 1980*b*; Stokes & Baer, 1977). The proposed strategies include: removing the token economy gradually so that behaviors are maintained with less direct reinforcement; reinforcing behaviors under a variety of situations so that the behaviors are not restricted to a limited range of cues; substituting naturally occurring reinforcers such as praise and activities in place of tokens; altering the schedule and delay of reinforcement to prolong extinction; and using peers and clients themselves as reinforcing agents to sustain long-term performance across a variety of situations.

EMERGENT ISSUES

Advances over the last decade have not entirely resolved the questions about the token economy and variables that contribute to behavior change. However, over the years other issues have emerged that directly pertain to the

limitations of token economies. The issues pertain to the feasibility of implementing effective token economies outside the domain of research and demonstration projects.

Integrity of Treatment

The essential ingredients for beginning a token economy typically include identifying the target behaviors, the medium of exchange (tokens) and backup reinforcers and specifying the relations among performance, token earnings, and expenditures. The success of token economies is largely attributed to what the program is, i.e., the specific contingencies, rather than how the program is conducted. Too little attention has been accorded the manner in which the program is monitored and implemented. Several procedures are often included in the program to help monitor the treatment to ensure that the program is carried out correctly. These procedures may be critical to the successful implementation of token economies.

To appreciate the point, reconsider the program of Paul and Lentz (1977) which produced marked changes in chronic psychiatric patients. Several features of the Paul and Lentz study probably contributed to the success of the token program. First, training of staff to implement the treatments was extensive. Clinical staff received academic training that consisted of carefully planned instruction in the different procedures, using a detailed treatment manual as a guide. Training included opportunities for role playing, modeling, rehearsal, and feedback. The academic training was followed with on-the-job training and supervised practice.

Second, monitoring of treatment was extensive to ensure that the programs were administered as planned. (The assessment procedures used to monitor treatment are detailed in a series of papers published in a special issue of the *Journal of Behavioral Assessment*, 1979, 1(3).) Supervisory staff monitored data on staff-patient interaction daily and provided positive feedback to staff for flawless performance or corrective feedback for departures from the desired procedures.

Professional observers monitored staff and patients over the entire course of the program which provided a further check on execution of the program.

Third, the program included several personnel in roles that depart from the usual staffing of inpatient programs. Among the positions were several interns who helped implement and evaluate the program, persons to monitor staff-patient interaction, professional observers, already mentioned, Ph.D. level staff to supervise the research, and so on. The mere presence of separate research and clinical staff and Ph.D. level research supervisors to monitor the day-to-day program, added a special feature to ensure proper implementation of the treatments.

Finally, the treatment procedures were relatively complex, as would be expected with techniques that focus on difficult clinical problems. The treatment was described in manual form. Constant updating of procedures was handled through memoranda to clarify implementation of practices, to answer questions, and so on. Both the subtle day-to-day details and the resources to have knowledgeable personnel to address such questions are very special program features that may have helped ensure that treatment was conducted as intended.

Characteristics such as those mentioned above may have had major bearing on the clinical impact of treatment and the generality of results to other clinical settings. The results, viewed superficially, suggest that a token economy can produce dramatic inpatient and extrahospital changes and return chronic patients to the community. However, the Paul and Lentz program was implemented with multiple procedures to evaluate and monitor the execution of treatment. Programs without these latter procedures may fall quite short of the mark in producing similar changes.

One of the major problems of treatment and program evaluation is ensuring the *integrity of treatment*, i.e., that treatment is carried out as intended (Rossi, 1978; Scheirer, 1981; Sechrest, West, Phillips, Redner, & Yeaton, 1979). Moni-

toring the integrity of treatment is essential to ensure that the program is being conducted correctly. Different reports have indicated that token economies deteriorate when supervision over execution of the program is withdrawn or is not in place from the beginning. For example, Bassett and Blanchard (1977) reported a token economy in a prison setting for male adult offenders. When the director took a leave of absence and provided supervision only on a consulting basis, the program deteriorated rapidly. Specifically, staff withheld tokens for appropriate behaviors, increased the use of fines, and became inconsistent in the magnitude of fines that were invoked. The eventual return of the programs director and careful monitoring of the contingencies returned the program to its original state.

Similarly, Scheirer (1981) described a token economy for female chronic psychiatric patients that failed from the beginning in part because of the absence of personnel within the program to supervise staff directly and to ensure their proper execution of the contingencies. No single person was in a position of authority to coordinate and supervise the day-to-day details of running the program as part of the ward routine.

Finally, Rollins, Thompson, and their colleagues developed token economies in several elementary school classrooms (Rollins et al., 1974; Thompson et al., 1974). The programs were quite effective in altering student deportment and academic achievement. When the investigators left the setting, the resources for supervision and data collection were also withdrawn. When they returned 1 year later for follow-up assessment, the programs had been discontinued and teacher and student behavior had returned to preprogram rates.

In general, the potent effects of token economies may result in part from procedures included to ensure treatment integrity. Perhaps, a minimal condition to monitor treatment execution is the continuous data collection on client or staff behavior. Assessment procedures have been carefully developed and tested by Paul and

his colleagues to monitor patient and staff behavior and program execution in institutional settings (see Engel & Paul, 1979; Licht, 1979; Mariotto, 1979; Power, 1979; Redfield, 1979). Of course, in many institutional settings, continuous data collection is often difficult to implement unless special consultants with outside resources are available (see Scheirer, 1981). With little or no feedback about direct execution of the program or its effects on client behavior, the integrity of treatment and the efficacy of the program are likely to be sacrificed.

Administrative and Organizational Issues

Token economies are frequently implemented in institutional settings such as schools, psychiatric facilities, and institutions for the mentally retarded. Programs must work within the confines of organizational structures, administrative hierarchies, and external regulatory procedures. Organizational and administrative issues frequently dictate the extent to which implementing an effective token economy is feasible (see Scheirer, 1981). Constraints in permissible practices within the institution, lack of authority or power to follow through on program decisions, limited resources, and a variety of other sociopolitical issues may interfere with beginning the program and maintaining the integrity of treatment once the program is initiated. Although organizational obstacles have long been recognized in applied research (e.g., Tharp & Wetzel, 1969), their significance in delimiting the effects of token economies has only been fully appreciated relatively recently (Ayllon et al., 1979; Bushell, 1978; Liberman, 1979; Repucci & Saunders, 1974; Scheirer, 1981).

Professionals who are responsible for designing, implementing, and evaluating token economies may not initially recognize organizational and administrative issues as central to the program. However, the issues come into sharp focus as they affect more familiar variables that are known to influence program effectiveness. For example, limited resources within an institution may be translated into a small budget for backup

reinforcers, insufficient staff to reward clients as frequently as might be required, and absence of personnel to assess behavior of clients or staff. In one instance, a limited budget resulted in the absence of backup reinforcers in the store when psychiatric patients were to spend their tokens (Scheirer, 1981).

Administrative and institutional obstacles often become obvious when beginning staff training. As noted earlier, the administration of direct reinforcement to staff has been an important ingredient in many staff training programs. Yet, potent reinforcers (e.g., money, vacations, shift preferences, work breaks) usually are unavailable for contingent application. Thus, staff training programs often rely on in-service training, workshops, and feedback which by themselves may be less effective training procedures than when used in conjunction with potent reinforcers. Even if incentives (e.g., certificates, recognition in a institutional newsletter) are provided, staff behavior is not always easily assessed to ensure that incentives are applied contingently.

Whether the program variations known to be effective can be implemented or implemented routinely in applied settings is a major question facing the field at the present time. Questions about the feasibility of extending the token economy have become more prominent over the last decade because they have direct implications for the dissemination of the token economy, as discussed below.

Dissemination of the Token Economy

Merely demonstrating that the token economy is effective is not enough for it to be widely adopted. A dramatic illustration of the processes and obstacles associated with program adoption was provided by Fairweather and his colleagues who developed an effective aftercare program (community lodge) for psychiatric patients. A research project was designed to disseminate the program to hospitals throughout the United States and to evaluate alternative methods of promoting program adoption. The results revealed a very small proportion (approximately

10%) of the settings adopted the program (Fairweather, Sanders, & Tornatzky, 1974) but provided important information about the progression from research and development to dissemination and social policy change (Fairweather & Tornatzky, 1977).

The characteristics of programs that may contribute to their widespread adoption have been elaborated by Fawcett, Mathews, and Fletcher (1980) in the context of behavioral community psychology. Drawing from work on dissemination in other fields (e.g., extension of technology to underdeveloped countries), Fawcett et al. (1980) discussed the notion of an "appropriate technology" which refers to procedures that are compatible with the context, resources, philosophy, and values of the settings in which they will be used. Interventions that are contextually appropriate and likely to be adopted should be (a) effective, (b) relatively inexpensive, (c) decentralized and controlled by local participants, (d) flexible enough to permit local input, (e) sustainable with local rather than outside resources, (f) relatively simple and comprehensible, and (g) compatible with existing values, goals, and perceived needs of the setting.

A few of the conditions of an appropriate technology have begun to be addressed in relation to token economics. For example, the expense (cost) of token economies has been examined in different ways. Operating costs, cost-effectiveness, and cost-benefit analyses have shown that major benefits accrue from adopting token economies in relation to existing alternatives such as routine psychiatric care or detention centers for juvenile offenders (e.g., Foreyt, Rockwood, Davis, Desvousges, & Hollingsworth, 1975; Kirigin et al., 1979; Paul & Lentz, 1977).

A major issue that has not been addressed is the extent to which successful programs can be sustained by local resources. Token economies reported in the research literature often have federal, state, or local funding to provide many of the resources that promote effective program implementation (e.g., money for staff who collect data, special reinforcers). Also, consultants

with interests in research and affiliations with academic departments often play an important role in program development and implementation. Resources not otherwise available in the institution (e.g., undergraduates) are often drawn upon to serve critical functions to maintain and evaluate the program.

For example, the Behavior Analysis Follow Through program was part of a specially funded demonstration project (Bushell, 1978). Execution of the program was monitored centrally and locally and teacher and student performance were regularly evaluated. The favorable results suggest that the token economy could be extended on a large scale provided the mechanisms for monitoring and supervision are in place as well. Whether the program could obtain the effects without outside resources included as part of a special research project remains to be seen. Even with the program closely monitored and supervised, treatment integrity and program effectiveness varied across different sites.

If effective token economies are to be disseminated, they may need to be designed to depend less on extraneous resources. Some attempts have been reported to reduce outside monitoring and input. For example, token programs in the schools developed by Rollins et al. (1974) depended on extensive training and supervision by outside consultants. To make the program less dependent on outside resources, principals were trained in behavioral techniques so they could return to their schools, train teachers, and monitor the programs (Rollins & Thompson, 1978). Extraintitutional resources continued to be used to monitor program effectiveness. Yet, the attempt to develop programs that can function autonomously with minimal outside resources is an important step.

Flexibility of the token economy warrants special comment insofar as it may relate to treatment integrity. The willingness of administrators, staff, and others to adopt a particular program may be a function of the perceived or actual flexibility of the procedures. Yet, there may be clear limitations in allowable flexibility

to ensure that changes in behavior are achieved. Procedural flexibility to promote local adoption and treatment integrity to ensure effective applications may need to be balanced. It may be critical to delineate program characteristics that are known or are likely to be essential for behavior change and those that are not. For example, in a token economy, reinforcers generally need to be delivered contingently and behaviors that compete with the target behavior should not be inadvertently or directly reinforced. On the other hand, many of the details of the program such as the selection of target behaviors, tokens, or backup reinforcers, and the use of staff or patients to administer consequences, individual or group contingencies, and other features can vary widely (Kazdin, 1977). Dissemination of the token economy may be facilitated by delineating the principles that need to be followed and the alternative ways in which they can be translated into effective procedures. In this way, flexibility can be delineated even for essential ingredients of the program.

The attention that token economies have received in research, claims made about their effects, and their seeming ease of implementation, may already have fostered their dissemination. The extent to which token economies are in use is not known; published reports of individual programs, of course, greatly underestimate their actual prevalence. Programs conducted in most applied settings may not be evaluated or, if evaluated, their effects may not be reported. Whether such programs conducted routinely in applied settings vary procedurally from those reported in research and whether the outcomes approach those reported in well monitored programs remain to be determined.

General Comments

Substantive questions about the token economy and variables that contribute to its efficacy are by no means resolved. The array of program variations and their relative effectiveness warrant continued research. However, within the last decade other issues that have become salient

pertain to the requirements of implementing token economies effectively in applied settings as part of routine care. The demands for maintaining the integrity of treatment, the ability to integrate token economies within administrative and organizational constraints, and the ease of disseminating the token economy effectively on a large scale appear to be especially relevant issues at this time in dictating the future of the token economy.

SUMMARY

The token economy has been extended greatly in recent years in terms of the range of populations, settings, and target problems to which it has been applied. A decade ago, salient issues pertained to how to improve client responsiveness to the program and how to promote maintenance and transfer. Since then, several advances have been made in these areas. The paucity of follow-up data, a perennial issue in outcome research, still characterizes the token economy. However, in the last decade, several studies have indicated that the effects of token economies are at least partially maintained and extend to extra-treatment settings.

Salient issues have emerged related to the extension of the technique as part of routine practice in treatment, rehabilitation, and educational settings. Many issues for effectively implementing the token economy have been identified related to the requirements for maintaining the integrity of treatment and integrating the program within administrative constraints of institutional settings in which such programs are likely to be useful. The primary question is whether the token economy can be implemented effectively outside the context of demonstration or research projects which include special features to sustain the integrity of treatment and to overcome institutional obstacles. Apart from continuing to refine the technique and understanding the variables that may contribute to its efficacy, the next step for research is to explore and evaluate procedures to integrate token economies rou-

tinely into settings where programs are likely to be of use.

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Received October 26, 1981

Final acceptance February 2, 1982